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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,934	01/15/2004	Nasreen Chopra	10020877-1	6527

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AGILENT TECHNOLOGIES, INC.
Legal Department, DL 429
Intellectual Property Administration
P.O. Box 7599
Loveland, CO 80537-0599

EXAMINER

KIKNADZE, IRAKLI

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/758,934

Applicant(s)

CHOPRA, NASREEN

Examiner

Irakli Kiknadze

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "a cathode layer that generates x-rays" (claim 4) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the

appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 1 and 4 are objected to because of the following informalities:

Claim 1 requires a period sign in the end of the sentence.

Claim 4, line 3 " a cathode layer that generates x-rays when bombarded by electrons " perhaps should read -- a target that generates x-rays when bombarded by electrons --, as been interpreted by the examiner according to the specification, on page 8, lines 11-22. Appropriate correction is required.

Claim Rejections - 35 USC § 102

Art Unit: 2882

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Grassmann et al. (US Patent 4,349,740).

With respect to claims 1 and 2, Grassmann teaches an imaging system (Figs. 1-4) comprising: an x-ray source that generates x-rays at first and second source points, the x-rays from the first and second source points passing through an object (column 4, line 62 – column 5, line 15); a planar detector comprising a plurality of photodetectors (71-85) covered by a layer of scintillation material that converts x-rays into visible light (column 5, lines 17-36), the planar detector being positioned to receive x-rays from the first and second source points after the x-rays have passed through the object; and a controller that selects which of the source points generates ^{x-rays at any} given time and that reads a first image formed by x-rays from the first source point and stored in a first portion of the photodetectors while a second portion of the photodetectors measures x-rays from the second source point to generate a second image that is stored in the second portion of the photodetectors. The controller combines the first and second images to form an image of a portion of the object (see abstract; column 5, lines 27-42).

5/12/05

6. Claims 1-3 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Parker (US Patent 5,461,653).

With respect to claims 1 and 2, Parker teaches an imaging system (Figs. 2 and 3) comprising: an x-ray source (20) that generates x-rays at first and second source points, the x-rays from the first and second source points passing through an object (10) (column 4, lines 31-38); a planar detector comprising a plurality of photodetectors (46) covered by a layer of scintillation material that converts x-rays into visible light (column 9, lines 50-58), the planar detector being positioned to receive x-rays from the first and second source points (2 and 2') after the x-rays have passed through the object; and a controller that selects which of the source points generates the x-rays at any given time and that reads a first image formed by x-rays from the first source point and stored in a first portion of the photodetectors while a second portion of the photodetectors measures x-rays from the second source point to generate a second image that is stored in the second portion of the photodetectors. The controller combines the first and second images to form an image of a portion of the object (column 3, lines 62- column 4, line 7; column 5, lines 34-42; claim 1).

With respect to claim 3, Parker teaches that the x-ray source comprises a collimator for preventing x-rays generated at the second source point from reaching the first portion of the photodetectors (column 4, lines 51-62).

With respect to claim 5, Parker teaches resetting a portion of the photodetectors while the second image is being stored in the succeeding portion of the photodetectors (column 8, line 55 – column 9, line 6).

7. Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Taskar et al. (US Patent 6,650,727 B1).

With respect to claim 1, Taskar teaches an imaging system (Figs. 1-3) comprising: an x-ray source (20) that generates x-rays at first and second source points, the x-rays from the first and second source points passing through an object (86); a planar detector (72) comprising a plurality of photodetectors covered by a layer of scintillation material that converts x-rays into visible light (column 3, lines 42-47 and 58-67; column 4, lines 14-24), the planar detector being positioned to receive x-rays from the first and second source points after the x-rays have passed through the object (column 4, lines 56-68); and a controller that selects which of the source points generates the x-rays at any given time and that reads a first image formed by x-rays from the first source point and stored in a first portion of the photodetectors while a second portion of the photodetectors measures x-rays from the second source point to generate a second image that is stored in the second portion of the photodetectors. The controller combines the first and second images to form an image of a portion of the object (see abstract; column 5, lines 19-47).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parker (US Patent 5,461,653) as applied to claim 1 above in view of Annis et al (US Patent 6,628,745 B1).

With respect to claim 4, Parker teaches that the x-ray source (2) is horizontally repositioned, physically or electronically but fails to teach a structural arrangement of the x-ray source generating x-rays at first and second source points. Annis teaches an imaging system (Figs. 1 and 2) comprising: an x-ray source that generates x-rays at first (50) and second source points (54) the x-rays from the first and second source points passing through an object. The x-ray source comprises: an electron gun (22) for generating a beam of electrons (24); a target layer (34) that generates x-rays when bombarded by electrons from the electron gun (22) and a deflection system (as an electromagnetic assembly) for positioning the beam of electrons (24) so as to strike the target layer (34) at selected points thereon, wherein the first and second source points correspond to first and second locations on the target layer (34) (column 3, lines 30-67). This arrangement provides a rapidly moving x-ray source without using mechanical motion for redirecting electrons to create x-rays at different source points (column 1, lines 15-17; column 2, lines 1-8; column 3, lines 15-20). It would have been obvious to one of the ordinary skill in the art at the time the invention was made to employ the x-ray source teachings of Annis in the imaging system of Parker to provide the x-ray imaging system with the rapidly moving, deflected by the electromagnetic assembly, the x-ray source because it would increase x-ray inspection speed and avoid the cost and time

constraints imposed by the system that utilizes mechanical motion for generating the different source points.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grassmann et al. (US Patent 4,349,740) as applied to claim 1 above, and further in view of Fowler (US Patent 6,424,375 B1).

With respect to claim 5, Grassmann teaches irradiating a desired region on the detector element array (72) with the X-ray beam and the data collecting (see abstract; column 5, lines 27-42) but fails to teach reset readout mechanism of the some portions of the photodetectors while other portions are storing image. Fowler teaches a CMOS image sensor comprising a reset/readout mechanism of the photodetectors (see abstract, column 2, lines 11-20). " An advantage of the present invention is the use of bandlimiting and capacitive feedback to reduce pixel reset noise in image sensors without adding lag. By reducing pixel reset noise, the fundamental detection limit of the pixel is increased resulting in improved image clarity " (column 2, lines 56-63). It would have been obvious to one of the ordinary skill in the art at the time the invention was made to employ the teachings of Fowler in the imaging system of Taskar to substitute the photo multipliers with the CMOS detector because it would provide the x-ray imaging system with: a thin image sensor integrated on-chip circuitry, good imager performance with low-noise, no lag or smear, good blooming control, random access, simple clocks, and fast readout rates. Farther, It would have been obvious to employ the teachings of Fowler in the imaging system of Taskar to provide the x-ray imaging system the reset mechanism of the portions of the photodetectors not been involved in

storing the image because it would reduce the readout time for the image taken at each x-ray position since only the portion currently used needs to be readout and increase fundamental detection limit of the entire planar detector resulting in improved image clarity.

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taskar et al. (US Patent 6,674,837 B1) as applied to claim 1 above, and further in view of Fowler (US Patent 6,424,375 B1).

With respect to claim 5, Taskar teaches irradiating a desired region on the detector element array (72) with the X-ray beam and the data collection during scanning (see abstract; Fig. 3) but fails to teach reset readout mechanism of the some portions of the photodetectors while other portions are storing image. Fowler teaches reset/readout mechanism of the photodetectors (see abstract, column 2, lines 11-20). "An advantage of the present invention is the use of bandlimiting and capacitive feedback to reduce pixel reset noise in image sensors without adding lag. By reducing pixel reset noise, the fundamental detection limit of the pixel is increased resulting in improved image clarity " (column 2, lines 56-63). It would have been obvious to one of the ordinary skill in the art at the time the invention was made to employ the teachings of Fowler in the imaging system of Taskar to provide the x-ray imaging system with the reset mechanism of the portions of the photodetectors not been involved in storing the image because it would reduce the readout time for the image taken at each x-ray position since only the portion currently used needs to be readout and increase

fundamental detection limit of the entire planar detector resulting in improved image clarity.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irakli Kiknadze whose telephone number is 571-272-2493. The examiner can normally be reached on 9:00- 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571-272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Irakli Kiknadze

May 10, 2005

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**EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER**